

*CAREX ANDINA* PHILIPPI (CYPERACEAE): ITS TAXONOMY,  
DISTRIBUTION, AND LECTOTYPIFICATION

*CAREX ANDINA PHILIPPI* (CYPERACEAE): SU TAXONOMIA,  
DISTRIBUCION Y LECTOTIPIFICACION

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ABSTRACT

*Carex andina* occurs in Central Chile and the northwestern part of Argentine Patagonia, where it grows on dry and rocky slopes at elevations of about 1200-3300 m. Reports of this species from southern Patagonia are based on misidentified specimens. Morphological differences between *C. andina* and *C. setifolia* are discussed. The salient features of *C. andina* are: perigynia obovate, essentially beakless; achenes obovate; rachilla relatively broad, lanceolate, 1/3 to 3/4 the length of the achene; and leaf sheaths with the ventral band smooth at the mouth. A lectotype is chosen for *C. andina*.

KEYWORDS. *Carex andina*, Cyperaceae, southern South America, lectotype.

RESUMEN

*Carex Andina* se encuentra en Chile central y en la región noroeste de la Patagonia argentina, donde crece en laderas secas y rocosas entre 1200-3300 m. Citas de esta especie para el sur de la Patagonia están basadas en especímenes mal identificados. Se discuten las diferencias morfológicas entre *C. andina* y *C. setifolia*. Las características sobresalientes de *C. andina* son: periginios obovados, casi sin pico; aquenios obovados; raquilla relativamente ancha, lanceolada, de 1/3 a 3/4 del largo del aquenio; vainas foliares con la banda ventral lisa en la boca. Se elige un lectotipo para *C. andina*.

INTRODUCTION

A recent study of *Carex* L. (Cyperaceae) material from Argentina and Chile, as well as a survey of South American literature, reveals that some confusion exists regarding the distribution of *Carex andina* Philippi (sect. *Junciformes* (Boeckeler)

Kük.) in southern South America. Examination of syntypes of *C. andina* reveals that some specimens previously reported as "*C. andina*" are actually referable to other species; also, some specimens clearly assignable to *C. andina* have erroneously been reported as other taxa (e.g., *C. setifolia* Kunze ex Kunth var. *neuquensis* Barros). Below we attempt to: (1) clarify the distribution of *C. andina* in southern South America, (2) point out salient differences in morphology between *C. andina* and *C. setifolia* (and its varieties), species which have been confused in the recent past, (3) place the name *C.*

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*setifolia* var. *neuquensis* in the synonymy of *C. andina*, (4) discuss the status of "*C. andina*" sensu Barros (1935, 1947, 1969), and (5) select a lectotype for *C. andina*.

Full citations are given near the end of this report for specimens of *Carex andina* collected in Argentina and Chile; a distribution map for *C. andina* is also provided (Fig. 1). When discussing members of the *C. setifolia* species complex, we have retained the nomenclature used by Kükenthal (1909) and Barros (1935, 1947, 1969).

### MORPHOLOGY

Examination of syntypes of *Carex andina* (Fig. 2A-B) reveals that the perigynia are obovate and essentially beakless, the achenes obovate, and the rachilla broadly lanceolate and about 1/3 to 3/4 the length of the achene. By contrast, in *C. seti-*

*folia* var. *setifolia* (Fig. 4A-B) the perigynia are pyriform and distinctly beaked, the achenes oblong, and the rachilla setiform and somewhat shorter than to slightly exceeding the achene. Some of the aforementioned diagnostic features of var. *setifolia* have been illustrated by Kunze (1840-51, Tab. 26) and Kükenthal (1909, Fig. 18: p. 84). Furthermore, an isotype of the typical variety of *C. setifolia* (Poeppig I. N° 26 [(BM!)] from Chile, clearly possesses these characters, although the perigynia and achenes of the BM specimen are somewhat immature. It is noteworthy that *C. setifolia* var. *colchaguensis* (Philippi) Kük. and var. *pungens* (Boeckeler) Kük. (sensu Kükenthal 1909) also have pyriform perigynia, oblong achenes, and a setiform rachilla. A morphological comparison of 11 characters of *C. andina* and *C. setifolia* var. *setifolia* is given in Table I.

### DISCUSSION

Philippi (1896, p. 485) described *Carex andina* from plants collected in the Andes of central Chile, and subsequently Kükenthal (1899, 1909) recognized it as a good species. More recent workers have reported *C. andina* from Argentina (Barros 1935, 1947, 1969) as well as from Chile (Léveillé 1915; Marticorena and Quezada 1985). Kükenthal (1910) described a variety of *C. andina*, var. *subabscondita* Kük., from plants collected in central Patagonia (Chubut Province, Argentina), but these low-growing plants, which Wheeler (1986) considers to be conspecific with *C. nelmesiana* Barros, are more closely related (i.e., morphologically more similar) to the other low-growing Patagonian members of sect. *Junciiformes* (e.g., *C. argentina* Barros and *C. austroamericana* G. Wheeler) than to *C. andina*, which differs by having elongated culms (up to 35 cm tall), several to many perigynia per spike, and a relatively broad rachilla.

While Philippi (1896), Kükenthal (1899, 1909), and Léveillé (1915) reported *Carex andina* only from central Chile, Barros (1935, 1947, 1969) reported it also from the western portion of Argentine Patagonia, citing specimens from Neuquén (*Castellanos s.n.* [BA-1892] and *O'Donnell 2142* [LIL]), Chubut (*Gerling 215* [BAF]), and Santa Cruz (*Hogberg 42* [LP]) provinces. For



FIG. 1. Map of southern South America showing the distribution of *Carex andina*.

TABLE 1. A selected morphological comparison of *Carex andina* and *C. setifolia* var. *setifolia* in South America

Characters	<i>C. andina</i>	<i>C. setifolia</i> var. <i>setifolia</i>
Mouth of ventral band of leaf sheath	smooth	ciliate
Spike shape	hemispheric to globose	ovoid
Number of female flowers/spike	10 - 40	less than 20
Perigynium shape	obovate	pyriform
Perigynium beak length (mm)	beakless (or nearly so)	0.5 - 0.8
Perigynium length (mm)	2.4 - 3.2	3 - 4.2
Rachilla shape	broadly lanceolate	setiform
Rachilla length (mm)	0.8 - 2	2.2 - 3.
Rachilla width (mm)	0.3 - 0.6	less than 0.2
Achene shape	obovate	oblong
Achene length (mm)	2.2 - 2.5	2.5 - 2.8

purposes that will become clear further below, it is also important to note here the previous reports of *C. setifolia* (s.l.) from Argentina.

Barros (1947, p. 393) reported *Carex setifolia* var. *pungens* from Neuquén Province, citing a single specimen (*Burkart 9620* [SI]) from Pino Hachado. In a later work, Barros (1969, p. 70) reported var. *setifolia* as occurring in Argentina, and, interestingly, cited the same specimens for it (*Burkart 9620*); in 1969, Barros (p. 72) wrote regarding var. *pungens*, "probablemente también en la Patagonia". Also in the same work, Barros (1969, p. 72) described a new variety of *C. setifolia*, var. *neuquensis*, from plants collected in the department of Minas in northern Neuquén Province (*Boelcke 10798* [BAB]).

However, after a thorough and careful examination of *Burkart 9620* (Fig. 3B) and *Boelcke 10798* (Fig. 3C), it is abundantly clear that each of these specimens is morphologically more similar to *C. andina* than to *C. setifolia*. Indeed, both specimens possess all of the features that characterize *C. andina* (Table 1), such as having obovate perigynia that are essentially beakless, obovate achenes, and a relatively broad, lanceolate rachilla. As such, *Burkart 9620* and *Boelcke 10798* are assignable to *C. andina*, not to *C. setifolia* (compare Fig. 3B and Fig. 3C with Figs. 2A-B and 4A-B). Although minor morphological differences do exist between the *Burkart* and

*Boelcke* specimens (e.g., culm length, perigynium size and degree of pubescence, rachilla length and width; also see Fig. 3B-C), these differences are here considered to be part of the normal variation of the species. Some of the morphological variation existing among populations of *C. andina* is illustrated in Figs. 2 and 3.

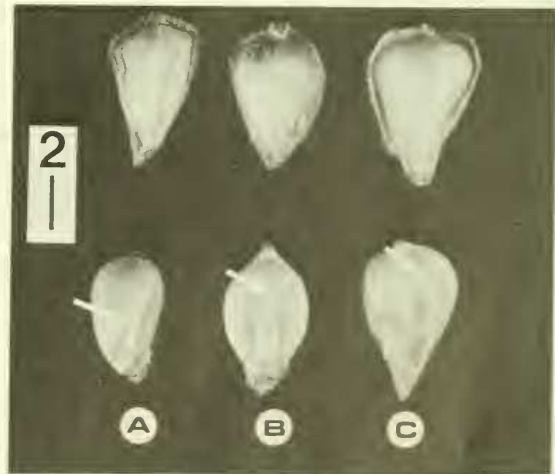


FIG. 2. *Carex andina*. Specimens from Chile. A. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *R. Philippi s.n.* (SGO-37640, syntype). B. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *R. Philippi s.n.* (SGO-46048, lectotype). C. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *Zöllner 5827* (NA). In A-C: perigynium above, achene with attached rachilla below; arrow points to apex of rachilla; bar equals 1 mm.

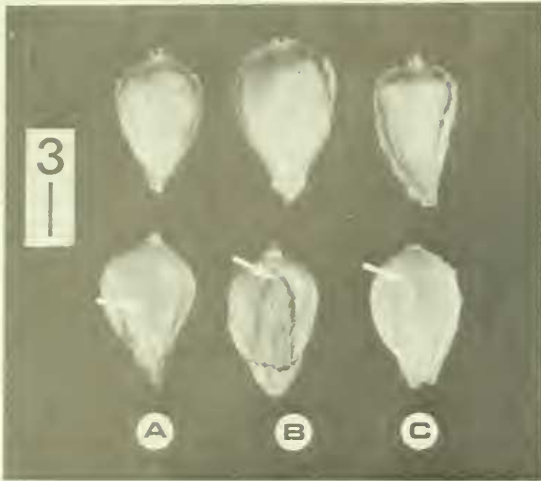


FIG. 3. *Carex andina*. Specimens from Argentina. A. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *O'Donell 2142* (LIL). B. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *Burkart 9620* (SI). C. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *Boelcke 10798* (BAB). In A-C: perigynium above, achene with attached rachilla below; arrow points to apex of rachilla; bar equals 1 mm.

From the discussion above, it is evident that *Carex andina* occurs in Argentina as well as in Chile. But what is "*Carex andina*" sensu Barros (1935, 1947, 1969)? It is clear from Barros's illustrations of "*C. andina*" that more than one taxon is involved. Examination of *O'Donell 2142* (LIL), which was the specimen cited and illustrated for the species in 1947 (p. 394, Pl. 168), reveals that it is indeed referable to *C. andina* (compare Fig. 3A with Fig. 2A-B). However, the specimens illustrated for "*C. andina*" in 1935 (Fig. 22: p. 184; drawn from *Hogberg 42* [LP]) and in 1969 (Fig. 59: p. 71; drawn from *Castellanos s.n.* [BA-1892]) are not referable to *C. andina* because the perigynia of both specimens are broadly elliptical and possess a distinct beak. Although the Hogberg and Castellanos specimens have not been seen by the authors, several other specimens examined from Argentine Patagonia (i.e., from Neuquén Province southward to Santa Cruz Province) have perigynia that are essentially identical to those described above. This undescribed taxon closely resembles *C. patagonica* Sp. (sect. *Junciformes*) and is presently under study.

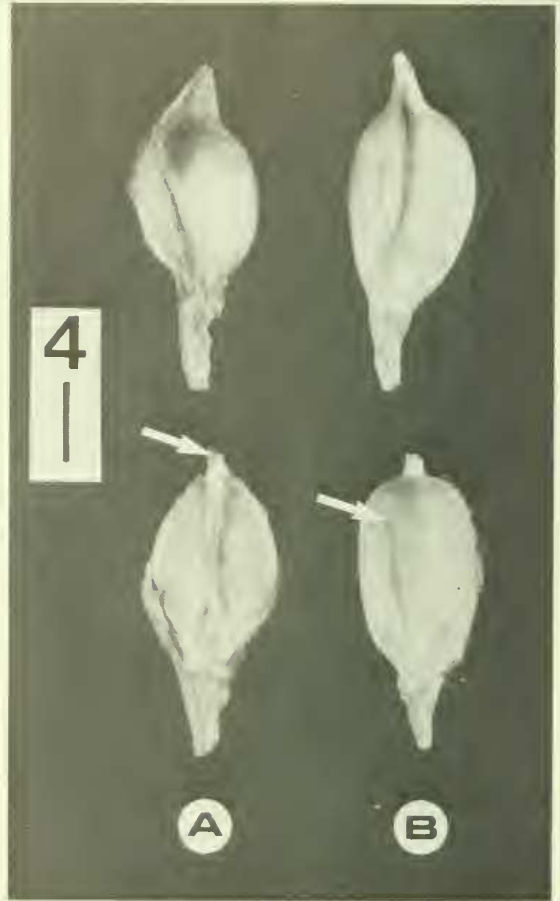


FIG. 4. *Carex setifolia* var. *setifolia*. Specimens from Chile. A. perigynium (ventral view); achene with attached rachilla (dorsal view); from *Montero 7837* (GH). B. Perigynium (ventral view); achene with attached rachilla (dorsal view); from *E. Barros 463* (GH). In A-B: perigynium above, achene with attached rachilla below; arrow points to apex of rachilla; bar equals 1 mm.

It is also important to note here that no specimen of *Carex setifolia* var. *setifolia* has been seen from Argentina. The typical variety occurs in the northern part of central Chile, particularly near the coast, and is also reported from Peru (Macbride 1936; Kükenthal 1909). It grows from near sea level to about 1800 m, where it frequents dry hillsides, washes and ravines, and sand dunes near the coast. The recognized varieties of *C. setifolia* (sensu Kükenthal 1909) grow at higher elevations in Chile, with at least one of them also occurring in Argentina.

## LECTOTYPIFICATION

*Carex andina* was described from plants collected "Ad radicem Andium occurrit prope Santiago, Chillán et alibi" (Philippi 1896, p. 485). Two specimens at the Museo Nacional de Historia Natural, Santiago, Chile (SGO), where Philippi's types are currently preserved, have labels annotated by Philippi that read "*Carex andina* Ph.," SGO-37640 and SGO-46048 (Muñoz-Schick 1973). The label on the former gives "Baños de Chillán" as the locality, and the label on the latter gives "Arañas". Unfortunately, no other information is given on either label.

In selecting a lectotype, it is noteworthy that some features of SGO-37640 do not fit closely the description for *Carex andina* given in the protologue. For example, Philippi (1896, p. 485) writes "bractea brevi" and "La bráctea mayor tiene a lo sumo 18 milímetros de largo", but in SGO-37640 two of the three spikes present have bracts over 40 mm long. Furthermore, Philippi described the perigynia of *C. andina* as "mui lampiños, pero las costas algo cilioladas", but in SGO-37640 the majority of perigynia are short pubescent between the ribs. One of the authors wrote on the specimen in 1979 that it was a doubtful type because of: "bráctea inferior mayor que en la descripción original y utrículo no tan glabro" (M. Muñoz S.IV. 1979). Therefore, in our opinion SGO-37640 is a poor candidate for lectotype.

On the contrary, we believe SGO-46048 is a candidate for lectotype of *Carex andina* because (1) the specimen matches very closely the description of the species given in the protologue and (2) the specimen was definitely examined by R. A. Philippi, as evidenced by his handwriting on the label. Although "Arañas" was not cited specifically in the protologue, it corresponds to a site "ad radicem Andium prope Santiago" (33° 14'S, 70° 28' W) from where Philippi described many species. After considering all available evidence, we select SGO-46048 as lectotype for *Carex andina*.

*Carex andina* Philippi.

Anales Univ. Chile 93:485. 1896.

TYPE Chile [Prov. Santiago], Arañas, s.d., *Philippi s.n.*

(LECTOTYPE [here designated]: SGO-46048!)

## Synonym:

*Carex setifolia* Kunze ex Kunth var. *neuquensis* Barros, Fl. Patag. II. p. 72., 1969.

TYPE Argentina, prov. Neuquén, Dpto. Minas, 21 km. de Las Ovejas, camino a las lagunas Epu-lauquén, arroyo Las Bandurrias [1.250 m. 36° 55'S, 70° 56'W, 14 Jan 1964], *Boelcke 10798* (holotype: BAB!).

*Carex andina* occurs in central Chile and the northwestern part of Argentine Patagonia (Fig. 1). No specimen of this species has been seen from south of Cerro Otto (41° 09' S lat.) in Río Negro Province, Argentina, and reports of it from southern Patagonia (Barros 1935, 1969) are based on misidentified specimens. This transandean species grows primarily on dry and rocky slopes at elevations of about 1200-3300 m, and in some localities it extends to near the snowline. It seems to be of infrequent to occasional occurrence in both Argentina and Chile.

## REPRESENTATIVE SPECIMENS

ARGENTINA. PROV. NEUQUEN: Dpto. Minas, valle superior del Arroyo Atrucó, 36° 45'S, 70° 33'W, en pedregal y ladera seca, 2010-2050 m, 2 Feb. 1964, *Boelcke 11485* (partim SI); Dpto. Norquén, Copahue, 2000 m, 25 Dec. 1944, *O'Donnell 2142* (LIL); [Dpto. Picunches], Pino Hachado, 5 March 1939, *Burkart 9620* (SI); Dpto. Catán-Lil, Sierra del Chachil, 29 Jan. 1965, *Rúgolo & Agrasar 412* (BAA); zwischen Estancia Pulmari und Lago Aluminé, 23 Dec. 1937, *Kalela 1590* (S); Parque Nacional Lanin, Cerro Chapelco, ladera NW, 11 Feb. 1961, *León & Calderón s.n.* (BAA-845). PROV. RIO NEGRO: [Dpto. Bariloche], San Carlos de Bariloche, Cerro Otto, 1200 m, 10 Feb. 1934, *Parodi 11855* (BAA).

CHILE. PROV. SANTIAGO. Río Yeso, Laguna de los Piuquenes, 2500 m, en morrena (escaso), 13 Jan. 1945, *Biese 907* (LIL); Laguna Negra, 11000 ft., near snow, 6 Feb. 1902, *Hastings 486* (UC); PROV. O'HIGGINS: Cordillera de Colchagua, Jan. 1930, *Pirion 164* (GH). PROV. TALCA: Laguna Maule, 1500-2000 m, 4 Jan. 1972, *Zöllner 5827* (L, NA); Vilches, 500 m, 8 Jan. 1979, *Zöllner 10223* (partim CONC); El Picazo, 30 Dec. 1936, *E. Barros 467* (GH). PROV. ÑUBLE: Baños de Chillán, s.d., *R. Philippi s.n.* (SGO-37640-syntype).

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## LITERATURE CITED

- BARROS, M. 1935. Ciperáceas argentinas II, géneros *Killingia*, *Scirpus*, *Carex*. Anales Mus. Nac. Hist. Nat. Buenos Aires 38: 133-263.
- . 1947. Cyperaceae; Scirpoideae, Rhynchosporoideae, Caricoideae. In: H. R. Descole (ed.). Genera et Species Plantarum Argentinae. Tomus IV (II). Pp. 259-539. Tucumán. Fundación e Instituto Miguel Lillo.
- . 1969. Cyperaceae. In: M. N. Correa (ed.). Flora Patagónica, Parte II, Typhaceae a Orchidaceae (excepto Gramineae). Colec. Cient. Instituto Nacional de Tecnología Agropecuaria 8: 38-92. Buenos Aires.
- KÜKENTHAL, G. 1899. Die *Carex*-vegetation des aufsertropischen Südamerika (ausgenommen Paraguay und Südbrasilien). Bot. Jahrb. Syst. 27: 485-563.
- . 1909. Cyperaceae: Caricoideae. In: A. Engler (ed.). Das Pflanzenreich. IV. 20. Heft 38. Pp. 1-824. Leipzig: Wilhelm Engelmann.
- . 1910. Cyperaceae novae. I. Repert. Spec. Nov. Regni Veg. 8: 7-8.
- KUNTH, C. S. 1837. Enumeratio Plantarum, II. Cyperographia synoptica. Stuttgart and Tübingen. Pp. 1-592.
- KUNZE, G. 1840-51. Supplemente zu Schkuhr's Riedgräsern (Carices) oder Schkuhr's Riedgräser Neue Folge. Leipzig: (Ernst Fleischer), tab. col. 1-140.
- LÉVEILLÉ, H. 1915. Les *Carex* du Chili. Revista Chilena Hist. Nat. 19: 93-117.
- MACBRIDE, J. F. 1936. *Carex* in Flora of Peru. Field Mus. Nat. Hist., Bot. Ser. 13: 314-320.
- MARTICORENA, C., and M. QUEZADA. 1985. Catálogo de la flora vascular de Chile. Gayana 42 (1-2): 1-157.
- MUNOZ-SCHICK, M. 1973. Complemento de "Las especies de plantas descritas por R. A. Philippi durante el siglo XIX". Anales Univ. Chile 128: 5-69.
- PHILIPPI, R. A. 1896. *Carex* in Plantas nuevas chilenas. Anales Univ. Chile 93: 484-503.
- WHEELER, G. A. 1986. Two new species of *Carex* (Cyperaceae) from austral South America and additional taxonomic and phytogeographical notes on the genus. Brittonia 38: 317-324.

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